United States Department of Agriculture
Forest Service
R3 Regional Office
333 Broadway SE
Albuquerque, NM 87102
FAX (505) 842-3800
V/TTY (505) 842-3292

File Code: 3420
Date: August 20, 2001

Dennis Vasquez
Superintendent
Bandelier National Monument
HCR 1, Box 1, Suite 5
Los Alamos, NM 87544

Dear Mr. Vasquez:

At the request of Brian Jacobs of your staff, Terry Rogers, Entomologist and Hazard Tree Coordinator from our office, conducted a hazard tree walk-through survey of the Bandelier National Monument's administrative site, parking and picnic areas, and nature trails on August 13, 2001. Because of several recent hazard tree incidents at the Monument, Brian was concerned about future tree and limb failures and their potential for causing personal injury and/or property damage. Brian accompanied Terry during his site visit and showed him areas of concern. Following is Terry's summary of his walk-through survey results:

> This survey revealed at least one large cottonwood along the southwestern portion of the parking lot with a dead branch that could cause damage to parked vehicles or personal injury to visitors exiting their vehicles. Although this hazard is considered to be high-risk, we cannot predict with any certainty when it will fail. However, we do recommend this dead branch be removed as soon as possible. We believe the deaths of this limb and others occurring on cottonwoods throughout the Monument grounds were caused by a condition called wetwood. Wetwood is a water-soaked condition of the wood that occurs in the roots and branches of many kinds of trees. In some trees, notably elms and poplars, bacteria are associated with the condition and apparently cause it. Water-soaked wood with large numbers of bacteria (bacterial wetwood) is dead, usually discolored, and contains fatty acids that give it a sour, rancid odor.
>
> Foliage in the tops of trees severely affected by bacterial wetwood often wilts, and the affected branches die back. Usually, however, wetwood in landscape trees is unimportant, except for the disfiguring appearance of vertical light and dark streaks where the liquid seeps out of the cracks and wounds and runs down the bark. All of the cottonwoods examined at the Monument exhibited signs of the seeping associated with bacterial wetwood. However, most of the trees examined had no branch dieback. Because these trees are showing signs of bacterial wetwood, they should be monitored annually, especially where they pose a risk to visitors and property. Unfortunately, no controls for bacterial wetwood are known.
>
> The only other two trees observed as potentially hazardous were located across the stream from the parking lot and along the trail to the southeast. One of these trees was a large cottonwood and the other a ponderosa pine (Fig. 1).

Figure 1. Leaning cotton-wood and ponderosa pine posing hazard to trail users.

The cottonwood is especially dangerous because as the limbs and trunk have put on diameter, they have become massive and very heavy. Additional stresses, such as heavy snow loading or a wind event (microburst), could cause failure unexpectedly. Similarly, the ponderosa pine is already very large, shows no signs of a sweep correction, and is growing at an angle over the trail. Eventually, the sheer weight of the stem and crown will cause the tree to fail. Heavy snow loading in the winter or a wind event could also exacerbate its failure.

Overall, the cottonwoods and riparian area in general were in good condition. We recommend that you continue to mitigate the obvious hazards as they are detected and keep well-documented records of inspections. Inspecting administrative sites, picnic areas, and nature trails in riparian areas where elms and cottonwoods are located should be done annually and after every major storm event. Although managing hazard trees will reduce liability, it will not completely eliminate it. We commend Brian and all who are involved in managing the hazard tree program at Bandelier National Monument.

Forest Health personnel from both Arizona and New Mexico will be offering a Hazard Tree Workshop in New Mexico next spring (time and place to be announced). Attendance is open to all federal agencies and tribes involved in hazard tree management.

If you have any questions concerning this survey, please contact Terry directly at (505) 842-3287 or e-mail him at trogers@fs.fed.us.

Sincerely,

/s/ Debra Allen-Reid
DEBRA ALLEN-REID
New Mexico Zone Leader,
Forest Health

cc:
llucero
dlparker01
janhold
trogers